

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
 Trade name : Orto-Xylene
 Chemical name : o-xylene
 CAS No : 95-47-6
 Formula : C8H10

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Utilized as reactant for Phthalic anidride's and plasticizer's production. Flexible PVC, dyes, insecticides and pharmaceuticals

1.3. Details of the supplier of the safety data sheet

US office:
 Braskem S.A.
 5100 Westheimer Rd - Suite 495
 Houston, 77056 - USA

Manufacturer:
 Braskem S.A.
 Rua Eteno, 1561, Polo Petroquímico de Camaçari
 Camaçari, BA, CEP: 42810-000, Brasil

Contact Email : productsafety@braskem.com
 Emergency Telephone Number (CHEMTREC) : 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Liq. 3 H226
 Acute Tox. 4 (Inhalation) H332
 Skin Irrit. 2 H315
 STOT SE 3 H335
 Asp. Tox. 1 H304

Full text of H-statements: see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS02

GHS07

GHS08

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H226 - Flammable liquid and vapour
 H304 - May be fatal if swallowed and enters airways
 H315 - Causes skin irritation
 H332 - Harmful if inhaled
 H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

P210 - Keep away from heat, sparks, open flames, hot surfaces, No smoking. - No smoking
 P233 - Keep container tightly closed
 P240 - Ground/bond container and receiving equipment
 P241 - Use explosion-proof electrical, lighting, ventilating equipment
 P242 - Use only non-sparking tools
 P243 - Take precautionary measures against static discharge
 P261 - Avoid breathing gas, fume, mist, spray, vapours, dust
 P264 - Wash hands thoroughly after handling
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear eye protection, protective clothing, protective gloves

P301+P310 - If swallowed: Immediately call a POISON CENTER
 P302+P352 - If on skin: Wash with plenty of water
 P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
 P312 - Call a doctor, a POISON CENTER if you feel unwell
 P321 - Specific treatment (see ... on this label)
 P331 - Do NOT induce vomiting
 P332+P313 - If skin irritation occurs: Get medical advice/attention
 P362 - Take off contaminated clothing and wash before reuse
 P370+P378 - In case of fire: Use alcohol resistant foam, dry extinguishing powder, carbon dioxide (CO2) to extinguish
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed
 P403+P235 - Store in a well-ventilated place. Keep cool
 P405 - Store locked up
 P501 - Dispose of contents/container to comply with applicable local, national and international regulation.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : o-xylene-US

CAS No : 95-47-6

Name	Product identifier	%
o-Xylene	(CAS No) 95-47-6	98

Full text of H-statements: see section 16

Synonym: xylenes

3.2. Mixture

Not applicable

4.1. Description of first aid measures

First-aid measures after inhalation : Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In case of breathing difficulties administer oxygen. Immediately get medical attention.

First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Rinse immediately with plenty of water (for at least 15 minutes). Immediately get medical attention. Discard contaminated clothing.

First-aid measures after eye contact : Rinse immediately and plentifully with water, also under the eyelids, for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately get medical attention.

First-aid measures after ingestion : Remove casualty to fresh air and keep warm and at rest. Do not induce vomiting. If swallowed, rinse mouth with water (only if the person is conscious). Give water to drink if victim completely conscious/alert. Never give anything by mouth to an unconscious person. Immediately get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Headache. Nausea. Dizziness. Drowsiness. Loss of consciousness. Vomiting.

Symptoms/injuries after inhalation : Harmful if inhaled. Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness. Acute exposure to high doses or chronic exposure can cause pulmonary damages, liver, kidneys and neurological disorders. Aspiration of this material may cause chemical pneumonia.

Symptoms/injuries after skin contact : Harmful in contact with skin. Causes skin irritation. Prolonged/repetitive skin contact may cause skin defatting or dermatitis. Repeated exposure may cause skin dryness or cracking. Redness. burning.

Symptoms/injuries after eye contact : Irritating to eyes. May cause destruction of eye tissue.

Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways. Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Pulmonary oedema.

Chronic symptoms : Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : carbon dioxide (CO₂), dry chemical powder, foam. Water fog.
 Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Extremely flammable liquid and vapour. Vapours may cause fire/explosion if source of ignition is present. Heavier than air, vapours may travel long distances along ground, ignite and flash back to source. Under fire conditions closed containers may rupture or explode. On combustion forms: Carbon monoxide. Carbon dioxide. Formaldehyde.
 Explosion hazard : Vapours can form explosive mixtures with air. Vapor heavier than air may travel considerable distance to a source of ignition and flash back.

5.3. Advice for firefighters

Firefighting instructions : Do not approach fire except upwind and only with proper skin and respiratory protection (supplied air only). Cool closed containers exposed to fire with water spray.
 Protective equipment for firefighters : Extra personal protection: complete protective clothing including self-contained breathing apparatus. In case of fire: Wear self-contained breathing apparatus. Refer to section 8.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing gloves, and eye/face protection. Refer to section 8.
 Emergency procedures : Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection. Refer to section 8.
 Emergency procedures : Eliminate leaks immediately. Eliminate all ignition sources if safe to do so. Ventilate affected area. do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

6.2. Environmental precautions

Use water spray jet to minimise or disperse vapours. Absorb remaining liquid with sand or inert absorbent and remove to safe place. Avoid discharge to the environment. Do not flush down sewers. Do not allow to enter into surface water or drains. Do not allow run-off from fire fighting to enter drains or water courses. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. If the product enters drains or sewers the local water company should be contacted immediately; in the case of contamination of streams, rivers or lakes, the National Rivers Authority.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Ventilate affected area.
 Methods for cleaning up : Prevent spread over a wide area (e.g. by containment or oil barriers). Collect spills and put it into appropriated container. Keep the recovered product for subsequent recycling.
 Other information : Granulated activated charcoal associated to bioremediation demonstrated to be the best remotion system from contaminated water bodies. Recovery of the polluted soil and water remediation can be done through the Fenton reaction.

6.4. Reference to other sections

Refer to sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Use grounded electrical/mechanical equipment. Provide earthing of containers, equipment, pumps and ventilation facilities. Ground/bond container and receiving equipment. Avoid producing mist or vapors by heating of opened recipient.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Use explosion-proof ventilating equipment. Ensure adequate ventilation. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ground/bond container and receiving equipment.

Storage conditions : Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep in original containers closed. Keep stored the least quantity possible. Store in dry, cool, well-ventilated area.

Incompatible materials : Oxidizing agents. Strong acid. Halogenated compounds.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

o-Xylene (95-47-6)		
ACGIH	ACGIH TWA (ppm)	100 ppm
ACGIH	ACGIH STEL (ppm)	150 ppm

8.2. Exposure controls

Appropriate engineering controls : Provide local exhaust or general room ventilation to minimize vapour concentrations. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protective equipment : Protective goggles. Protective clothing. Gloves. Self-contained breathing apparatus.



Hand protection : VITON gloves. protective gloves: neoprene gloves, PVA.

Skin and body protection : Use protective coverall. Boots made of PVA.

Respiratory protection : Half/ full mask with filter for organic vapors. If there is any possibility of uncontrolled emissions or entering in instances where the exposure levels are unknown use a full-facepiece positive-pressure, air-supplied respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Colourless

Odour : Aromatic

Odour threshold : No data available

pH : Not applicable

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : -25 °C

Freezing point : No data available

Boiling point : 144 °C

Flash point : 32 °C

Auto-ignition temperature : 463 °C

Decomposition temperature : No data available

Flammability (solid, gas) : Flammable

Vapour pressure : 5 mmHg at 20°C

Relative vapour density at 20 °C : 3.7 (air =1)

Relative density : 0.880 (water =1)

Solubility : Insoluble in water. Soluble in ethanol, acetone, benzene, ethyl ether.

Log Pow : Log P (oct) = 2.77 (also reported 3.12)

Log Kow : No data available

Viscosity : 0,76 mPa @ 25 °C

Explosive properties : No data available

Oxidising properties : No data available

Explosive limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid static electricity discharges.

10.5. Incompatible materials

oxidizing agents. Strong acids. Halogenated compounds.

10.6. Hazardous decomposition products

Carbon dioxide (CO₂). Carbon monoxide. Formaldehyde.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation: Harmful if inhaled.

o-xylene (\f)95-47-6	
LD50 dermal rabbit	12126 mg/kg
ATE US (dermal)	12126.000 mg/kg bodyweight
ATE US (gases)	4500.000 ppmv/4h
ATE US (vapours)	11.000 mg/l/4h
ATE US (dust,mist)	1.500 mg/l/4h

o-Xylene (95-47-6)	
LD50 oral rat	3608 mg/kg
LD50 dermal rabbit	14100 mg/kg
LC50 inhalation rat (ppm)	4330 ppm (Exposure time: 6 h)
ATE US (oral)	3608.000 mg/kg bodyweight
ATE US (dermal)	1100.000 mg/kg bodyweight
ATE US (gases)	4500.000 ppmv/4h
ATE US (vapours)	11.000 mg/l/4h
ATE US (dust,mist)	1.500 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
pH: Not applicable

Serious eye damage/irritation : Not classified
pH: Not applicable

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

o-Xylene (95-47-6)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

o-xylene (95-47-6)	
NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight/day

Aspiration hazard	: May be fatal if swallowed and enters airways.
Symptoms/injuries after inhalation	: Harmful if inhaled. Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness. Acute exposure to high doses or chronic exposure can cause pulmonary damages, liver, kidneys and neurological disorders. Aspiration of this material may cause chemical pneumonia.
Symptoms/injuries after skin contact	: Harmful in contact with skin. Causes skin irritation. Prolonged/repetitive skin contact may cause skin defatting or dermatitis. Repeated exposure may cause skin dryness or cracking. Redness. burning.
Symptoms/injuries after eye contact	: Irritating to eyes. May cause destruction of eye tissue.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways. Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Pulmonary oedema.
Chronic symptoms	: Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

SECTION 12: Ecological information

12.1. Toxicity

o-xylene (95-47-6)	
ErC50 (algae)	4.7 mg/l (73 h - based on growth rate)
NOEC (acute)	1.17 mg/l (aquatic invertebrates - 7 d)
NOEC (chronic)	> 1.3 mg/l (56 d)

o-Xylene (95-47-6)	
LC50 fish 1	11.6 - 22.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3.2 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	11.6 - 22.4 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 2	2.61 - 5.59 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])

12.2. Persistence and degradability

o-xylene (95-47-6)	
Persistence and degradability	Readily biodegradable. not persistent.
BOD (% of ThOD)	50 % ThOD (23 d)

12.3. Bioaccumulative potential

o-xylene (95-47-6)	
Log Pow	3.12
Bioaccumulative potential	not bioaccumulable.

o-Xylene (95-47-6)	
BCF fish 1	21.4 (xylene from crude oil)
Log Pow	3.12

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer	: No additional information available
Effect on the global warming	: No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Dispose of contents/container to comply with applicable local, national and international regulations. Consult the appropriate authorities about waste disposal.
Sewage disposal recommendations	: The adequately treated and biorremediated effluents may be discarded into the water bodies.
Waste disposal recommendations	: Dispose of this material and its container at hazardous or special waste collection point.

SECTION 14: Transport information

Classification for ROAD transport: DOT

UN Number : UN1307



Safety Data Sheet

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Product: Orto-Xylene

Date of issue: 05/Oct/2017 Version: 3.1

Proper Shipping Name : Xylenes
Class : 3
Packing group : III
Reportable quantity : Xylene (mixed)

Classification for SEA transport: IMO - IMDG

UN Number : UN1307
Proper Shipping Name : XYLENES
Class : 3
Packing group : III
Marine Pollutant : Xylenes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

Product name : Xylenes

Classification for AIR transport: IATA - ICAO

UN Number : UN1307
Proper Shipping Name : Xylenes
Class : 3
Packing group : III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product, therefore it cannot be considered exhaustive. See guidelines of US DOT, IMDG and IATA regulations before transporting the product. The transportation organization is responsible for compliance with laws, regulations and rules for the transport of the material.

SECTION 15: Regulatory information

15.1. US Federal regulations

o-Xylene (95-47-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 313 - Emission Reporting	1.0 %

15.2. International regulations

CANADA

o-Xylene (95-47-6)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

o-Xylene (95-47-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

15.2.2. National regulations

o-xylene (95-47-6)
No data available

o-Xylene (95-47-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
 Listed on the Korean ECL (Existing Chemicals List)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Japanese Poisonous and Deleterious Substances Control Law
 Japanese Pollutant Release and Transfer Register Law (PRTR Law)
 Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Sources of Key data

: SDS.

Abbreviations and acronyms

: ACGIH (American Conference of Government Industrial Hygienists). ASTM - American Society for Testing and Materials . CAS (Chemical Abstracts Service) number. CLP - Classification, Labelling and Packaging. EEC - European Economic Community. EC - European Community. CSR - Chemical Safety Report. GHS - Globally Harmonised System. IARC (International Agency for Research on Cancer). Overland transport (ADR). PVC (Polyvinyl chloride). REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals. SDS - Safety Data Sheet.

Full text of H-statements:

-----	Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
-----	Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
-----	Asp. Tox. 1	Aspiration hazard, Category 1
-----	Flam. Liq. 3	Flammable liquids, Category 3
-----	Skin Irrit. 2	Skin corrosion/irritation Category 2
-----	STOT SE 3	Specific target organ toxicity (single exposure) Category 3
-----	H226	Flammable liquid and vapour
-----	H304	May be fatal if swallowed and enters airways
-----	H312	Harmful in contact with skin
-----	H315	Causes skin irritation
-----	H332	Harmful if inhaled
-----	H335	May cause respiratory irritation

Braskem - SDS US

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.